

X.—Results of Experiments in Tree-planting on the Northwest Plains.

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Six years ago the testing of trees and shrubs suitable for planting on the Northwest plains was begun at the experimental farms at Brandon, Manitoba, and at Indian Head, N.W.T. In no other part of the Dominion do the inhabitants manifest so much interest in tree-planting, and in order that the fullest information might be available to guide the settlers in their efforts in tree-growing, a large number of varieties from the eastern provinces and from Europe were included in the tests. It was expected that many of these would prove tender, and the expectations in this particular have been fully realized. The tests in most cases have been very thorough, and by disseminating information regarding these failures much good has been done in deterring lovers of trees from wasting their money in useless attempts to grow tender things.

In 1889, 12,000 forest trees and shrubs were sent from the central experimental farm at Ottawa to each of the branch farms in the west. These consisted of 118 varieties, of which about 60 per cent died before the following spring. In 1890 another consignment of about 21,000 was sent, of which a considerable number proved tender. Further supplies have been forwarded each year since, and by persevering effort the failures in the shelter-belts and plantations have gradually been made good by replanting with hardier sorts.

A very large number of native trees have been grown both on the branch farms and at the central farm from seed, especially of the box-elder (*Negundo aceroides*), elm (*Ulmus Americana*), ash (*Fraxinus viridis*), and oak (*Quercus macrocarpa*), and these are succeeding admirably. Several varieties of Russian poplars and willows have also done remarkably well, particularly *P. bereolensis*, *P. certinensis* and the Voronesh willow. These have proven quite as hardy as any of the natives and more rapid in their growth, and as they root readily from cuttings they have been much multiplied in that way, not only on the experimental farms but also among the settlers in different parts of the country. The success which has attended the growth of trees on the experimental farms has awakened increased interest in this subject and created a demand for trees which is increasing every year. As the result of the work of from five to six years there are now growing on the branch farm at Indian Head about 120,000 trees and shrubs, and about 75,000 on the branch farm at Brandon. These are planted so as to form avenues, clumps, shelter-belts and hedges. A belt 100 feet wide, with trees five feet apart each way, has been planted on the farm at Brandon along the west boundary for about a mile, and on the Indian Head farm a belt of similar width along both the west and north boundaries for about one and three-quarter miles.

Early in 1890 it was announced in several of the Northwest newspapers that packages

of young seedling forest trees containing 100 in each package would be sent from the central experimental farm at Ottawa as long as the supply lasted to any farmer or settler applying for them. Material had been secured sufficient for 1,000 packages, which it was supposed would be ample to meet the demand, but within a month after the announcement was made 2,600 applications had been received. As it was not possible then to meet the wishes of all, 1,000 packages were sent out to those who had applied earliest, and the names of the others were held over until the following year, when a more liberal provision was made and all were supplied, including applications subsequently received, altogether about 2,000. Ninety-five larger bundles were also sent by express to the Canadian Pacific Railway test gardens at different points along the line, to the agents on the Indian reserves, the Mounted Police stations, and other public institutions. A similar distribution of about 1,000 packages each was also made in 1892 and 1893. As the material for distribution has greatly increased on the branch farms, it has been thought best to encourage the settlers to apply there instead of sending to Ottawa. No announcement has been made during the past season of any distribution at Ottawa, but it has been found necessary to put up about 600 mail packages in order to meet the pressing requests received.

During the past four years a large quantity of tree seeds have also been distributed free by mail, mainly of such native varieties as could be obtained in the Northwest. Within this period more than five tons of such seeds have been collected and sent out in small bags, each containing from 3,000 to 5,000 seeds. These seeds have been accompanied by instructions for sowing and subsequent care. In 1891 tree seeds were thus sent to about 5,000 settlers. A large proportion of those who have received them have been successful in growing them, and from the seedling-beds the young trees have been planted in groves around the houses and buildings on a large number of farms. Many of these in four or five years will bear seed and become additional centres of distribution, which in a few years more will produce marked and gratifying results.

The planting of hardy young trees closely for shelter-hedges has been found most advantageous and beneficial, forming excellent protection for the growing of small fruits, vegetables and other tender or succulent crops. These hedges have been made chiefly of Russian poplars, box-elder, elm, ash and willow, planted in double rows at different distances, 1 ft. by 2, 2 by 2, 2 by 3, 3 by 3, and 4 by 4 ft. The Russian poplars have thus far made the most rapid and desirable growth. A Russian variety of *Artemisia*, *Artemisia Abrotanum* var. *Tobolskianum*, has also been found useful for this purpose on account of its ready and rapid growth from cuttings. The *Caragana arborescens*, or Siberian pea-tree, which can be readily grown from seed, also makes a very good hedge. In addition to the shelter which these hedges afford, they are beneficial in collecting and retaining the snow in winter, and thus producing favourable conditions of moisture in the spring. The tests which have been made on the western experimental farms have shown that there are now about 100 varieties of trees and shrubs which are hardy enough to endure the climate there and thrive well, and further tests are adding to this number from year to year. The example shown, the information given, and the facilities afforded for obtaining and disseminating cuttings and seeds from the large groves planted, will undoubtedly be the means of bringing about a rapid extension of this desirable work.